



U.S. Department
Of Transportation
**Federal Highway
Administration**

400 Seventh St., S.W.
Washington, D.C. 20590

September 17, 1992

Refer to: HNG-14/SS-30

T.M. Fawley, II, P.E.
Engineer
Hapco Division
P.O. Box 547
Abingdon, Virginia 24210

Dear Mr. Fawley:

Thank you for your August 20 letter to Mr. James H. Hatton, Jr., requesting the Federal Highway Administration's (FHWA) acceptance of your company's case aluminum anchor base (shoe base) for 127-mm (5-inch) O.D. callbox supports, your drawing number 44394. Accompanying your letter was a report of a single pendulum test conducted at your facility on an aluminum pole mounted on the anchor base. The report was attested to by Jeffery A. Bloom, an independent consultant who performed the velocity calculations. The test was conducted to assess the breakaway performance of thin-walled aluminum callbox supports with this base. Requirements for breakaway supports are found in the 1985 AASHTO Standard specifications for Structural Supports for Highway, signs, Luminaires and Traffic Signals. These specifications have been adopted, with minor modifications, by the FHWA.

The test result is summarized here:

Pole Type	6063-T6 aluminum Hapco Pole, Drawing TP 3267
Pole Wall Thickness, mm (in)	4.77 (0.188)
Base Type	356-T6 Alum. Shoe Base C-44394, 7.5-inch to 8-inch Bolt Circle
Call Box Mass, kg (wt, lbs.)	17.5 (38.6)
Test Article Mass, kg (lbs.)	40.9 (90.0)
Overall Height, excluding antenna, m (ft.)	3.8 (12.5)
Pendulum Mass, kg, (lbs.)	818 (1800)
Impact Speed, km/hr, (mph)	31.6 (19.6) 28.8 fps
Velocity Change, m/s (fps)	2.40 (8.0)
Calculated High Speed Velocity Change, m/s, (fps)	1.5 (4.9)
Stub Height, mm, (in)	50 (2)

The results of this test meet the change in velocity and stub height requirements adopted by AASHTO and the FHWA. Therefore, your company's breakaway shoe base described above is acceptable for use on Federal-aid highway projects, within the range of conditions tested, if proposed by a State.

Our acceptance is limited to breakaway characteristics of the system and does not cover structural features. Presumably, you will supply potential users with sufficient information on structural design and installation requirements to ensure proper performance. We anticipate that the States will require certification from HAPCO that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that used in the test, and that it will meet the FHWA change in velocity requirements.

The design of the Hapco base is proprietary. Thus, to be used in a Federal-aid highway project: (a) these breakaway supports must be supplied through competitive bidding with equally suitable unpatented items; (b) the highway agency must certify that they are essential for synchronization with existing highway facilities or that no equally suitable alternate exists; or (c) they must be used for research or for a distinctive type of construction on relatively short sections of road for experimental purposes. Our regulations concerning proprietary products are contained in Title 23, Code of Federal Regulations, Section 635.411, a copy of which is enclosed.

Sincerely yours,

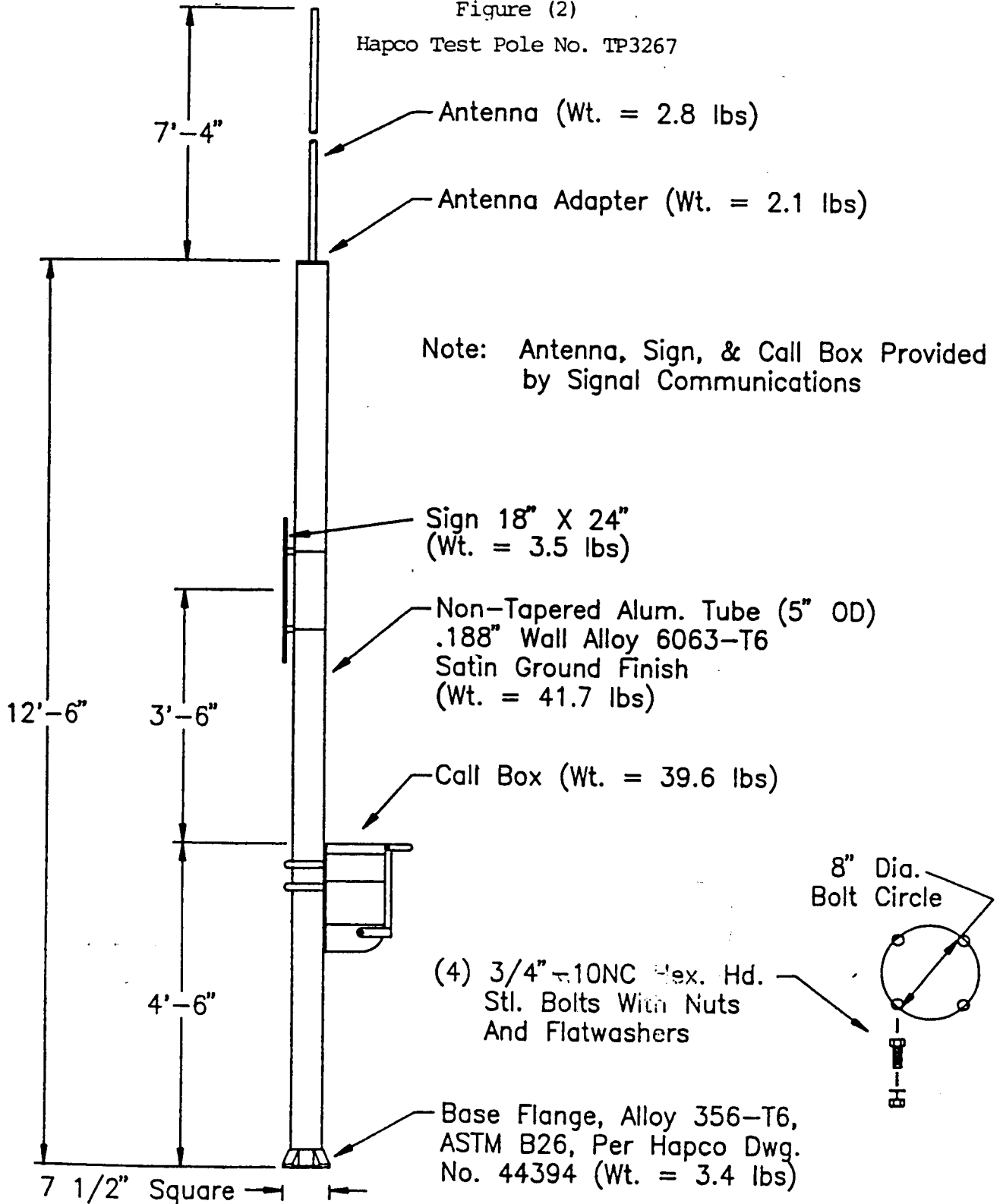
Lawrence A. Staron, Chief
Federal-Aid and Design Division

3 Enclosures

Geometric and Roadside Design Acceptance Letter Number SS-30

Figure (2)

Hapco Test Pole No. TP3267



DRAWN: M 7675

NO.	REVISIONS	DATE

hapco

COMPANY DIVISION OF KEARNEY-NATIONAL, INC. P. O. BOX 347 ASHBOOM, VA. 24210

TITLE HAPCO TEST NO. 3267	
CUSTOMER	
SCALE 1=24	DATE 7-9-92
BY PRS	DWG. NO. TP3267
CHK'D	

